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(54) **POWER SUPPLY SYSTEM AND GRID-CONNECTED CONTROL METHOD**

(57) This application provides a power supply system and a grid-connected control method. The power supply system includes a power supply, a collection control circuit, a load, and an inverter. The collection control circuit includes a grid-connected collection module and a control module. The grid-connected collection module is configured to obtain a harmonic current value of a grid-connected current at a grid-tied point, and when the harmonic current value of the grid-connected current is greater than or equal to a target harmonic threshold, generate a current compensation signal based on the harmonic current value of the grid-connected current. The control module

is configured to generate an inverter control signal based on the current compensation signal, and control, by using the inverter control signal, the inverter to output a harmonic compensation current to the load. According to this application, a harmonic current can be provided for a load by using an inverter circuit in the power supply system, to increase a sinusoidal degree of a current at the grid-tied point. A structure is simple, and a control method is convenient, thereby improving electric energy quality of the power supply system, prolonging a service life of a component, and reducing costs.

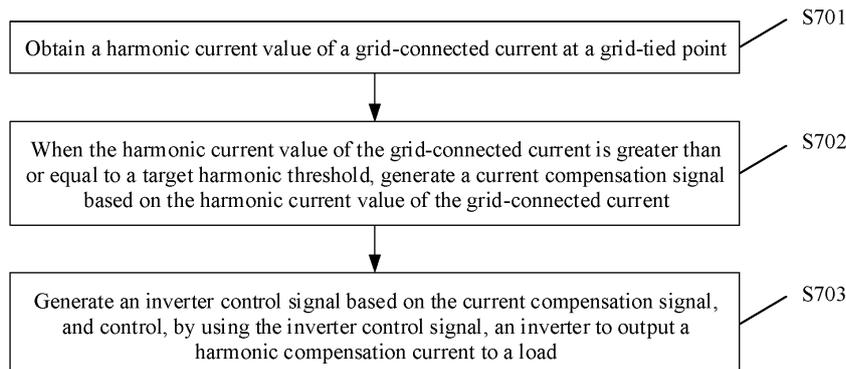


FIG. 9

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EUROPEAN SEARCH REPORT

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2017/141571 A1 (WONG MAN-CHUNG [CN] ET AL) 18 May 2017 (2017-05-18)	1, 10	INV. H02J3/01 H02J3/38 H02M1/12 H02M7/5395
A	* figures 3, 4, 15, 16 * * paragraphs [0039], [0044], [0047], [0051], [0053] *	2-9, 11-14	
X	WO 2014/129583 A1 (MEIDENSHA ELECTRIC MFG CO LTD [JP]) 28 August 2014 (2014-08-28)	1, 10	
A	* abstract * * figures 2, 3 *	2-9, 11-14	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			H02J H02M
Place of search		Date of completion of the search	Examiner
Munich		17 January 2024	Zettler, Karl-Rudolf
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

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5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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17-01-2024

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2017141571 A1	18-05-2017	NONE	

WO 2014129583 A1	28-08-2014	JP 6119297 B2	26-04-2017
		JP 2014161193 A	04-09-2014
		WO 2014129583 A1	28-08-2014

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